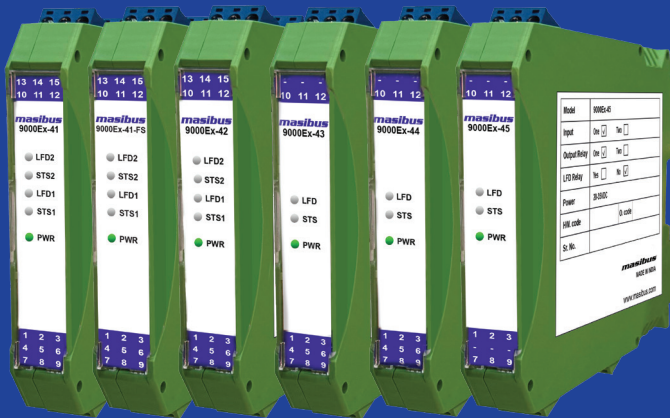




Digital Input Barrier [Ex ia Ga] IIC

9000Ex-41
9000Ex-41-FS
9000Ex-42
9000Ex-43
9000Ex-44
9000Ex-45

Switching Repeater



PESO Certified



LFD Supported



9000Ex-41, 9000Ex-41-FS, 9000Ex-42, 9000Ex-43, 9000Ex-44 and 9000Ex-45 Switching Repeater are engineered to provide safe and reliable signal transmission from hazardous areas to non-hazardous areas. These devices are specifically designed to transfer digital signals originating from NAMUR sensors or dry contacts located in hazardous zones, ensuring that control operations in safe areas can be executed without compromising safety.

By enabling a safe-area load to be controlled by a switch or proximity detector installed in a hazardous environment, these repeaters serve as a critical interface for process automation in industries where intrinsic safety is paramount.

The design incorporates galvanic isolation between the intrinsically safe digital input, the output, and the auxiliary power supply. It has an output relay, which changes state in direct response to the input signal. For ease of monitoring, the output status is clearly indicated by an Status LED located on the top of the module. This visual feedback ensures quick diagnostics and status verification during installation and maintenance.

With Line Fault Detection Output Relay, Line faults are signalled through a separate LFD relay and LFD LED indicated on the top of the module. To prevent unsafe operations, output relay is de-energized during a fault condition.

Switching Repeaters combine robust safety features with operational flexibility, making them an ideal choice for hazardous-area applications in process industries such as oil and gas, chemical, pharmaceuticals etc. The compact design with galvanic isolation, and advanced fault detection capabilities ensure excellent performance and compliance with safety requirements.

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Features

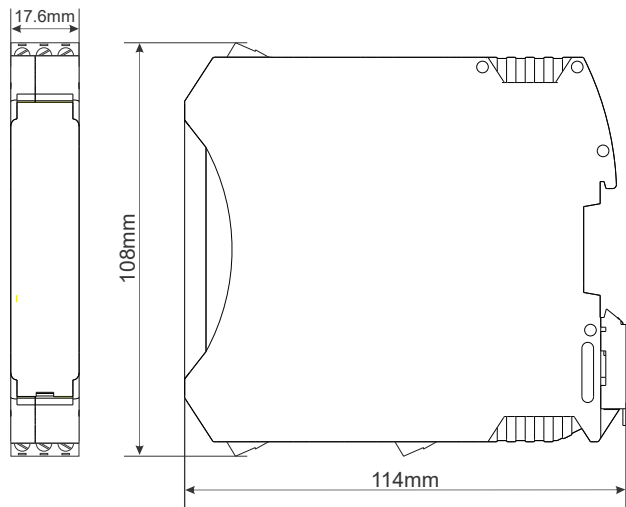
- Provides intrinsically safe digital input with galvanic isolation from output and auxiliary power
- Phase reversal allows reversing output mode
- Side DIP switches used for enable/disable Phase reversal and Line Fault Detection (LFD)
- During fault condition, output channel relay de-energizes automatically
- Advanced LFD monitoring for wire-break/ short-circuit
- Front LEDs of status/fault for ease of monitoring
- Polarised plugs and sockets for Hazardous area terminals

Applications

- Protect control systems from Hazardous area faults.
- Connects underground sensors to surface control systems safely for mining operation.
- Interfacing NAMUR proximity detectors, limit switches, push buttons installed in hazardous areas for Oil & Gas Industry.
- Valve position feedback and turbine pulse detection for refinery operations.
- Digital inputs for pumps, compressors, and reactor monitoring.
- Digital feedback for mixers, and process skids in API manufacturing.
- Skid integration with digital inputs for dosing, fuel, and burner skids.

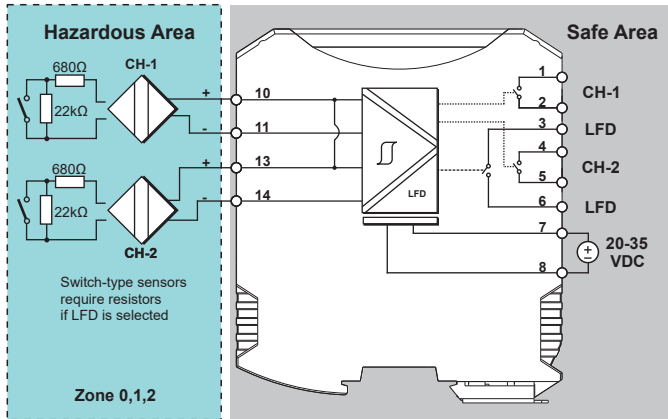
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TECHNICAL SPECIFICATIONS

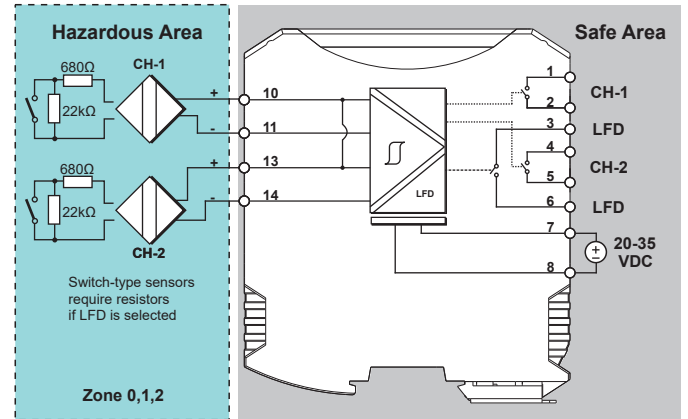
Hazardous -Area Input		Physical			
Connection side	Field Side (Hazardous Area)	Mounting Type	DIN Rail (35 mm)		
Input	Inputs conforming to BS EN60947–5–6:2001 standards for proximity detectors (NAMUR)	Terminal Block	UL, CSA standard		
Location of Switch	Zone 0, IIC, T6 hazardous area Div.1, Group A, hazardous location	Terminal Cable Size	2.5mm ²		
Location of Proximity Detector	Zone 0, IIC, T4–6 hazardous area, if suitably certified Div.1, Group A, hazardous location	Enclosure Material	PA66		
Sensor Voltage	7 to 9V dc from 1kΩ ±10%	IP Rating	IP20		
Switching Points	In normal phase, Outputs closed if input > 2.1mA (< 2kΩ in input circuit) and Outputs open if input < 1.2mA (> 10kΩ in input circuit)	Dimension (in mm)	17.6(W)x108(H)x114(D) mm		
Switching hysteresis	200μA (650Ω) nominal	Weight	≤150 g		
Safe-Area Output		Environmental			
Connection Side	Safe Area	Operating temperature	-20 to 60°C		
Relay Contact rating	250V ac, 2A, cosØ >0.7, 30V dc, 2A, resistive load, 40V dc, 1.2A, resistive load Note: reactive loads must be adequately suppressed	Storage temperature	-20° to 70°C		
Response time	≤ 10mS	Relative Humidity	30% to 95% RH (Non-Condensing)		
Indication LED	Yellow: channel status, on when output energized Red: LFD indication, on when line fault detected	Protection	Conformal Coating on PCB		
Line fault detection (LFD)	User selectable by switches on the side of the module. - Open-circuit alarm on if I _{lin} < 50μA, Open-circuit alarm off if I _{lin} > 250μA - Short-circuit alarm on if R _{in} < 100Ω, Short-circuit alarm off if R _{in} > 360Ω Note: Resistors must be fitted when using the LFD facility with a contact input 500Ω to 1kΩ in series with switch, 20kΩ to 25kΩ in parallel with switch	Model No.	Hazardous Area Input Channel	Safe Area Output Relay	Safe Area LFD Relay
		9000Ex-41	2	2 (SPST)	1 (SPDT)
		9000Ex-41-FS	2	2 (SPST)	1 (SPDT)
		9000Ex-42	2	2 (SPDT)	-
		9000Ex-43	1	2 (SPDT)	-
		9000Ex-44	1	1 (SPDT)	1 (SPDT)
		9000Ex-45	1	1 (SPDT)	-
		Dimensions			
LFD Relay	Line fault relay is energized and channel output relay de-energized if input line-fault detected				
Output Phase reversal	User selectable by switches on the side of the module.				
Power Supply		Safety Description (Each Channel)			
Voltage	20 to 35 VDC	Terminals 10 w.r.t. 11 (Channel-1)	U _o = 10.5V, I _o = 14mA, P _o = 37mW,		
Power Consumption	9000Ex-41/9000Ex-41-FS/9000Ex-42/9000Ex-43: ≤0.9W@24V 9000Ex-44/9000Ex-45: ≤0.6W@24V	Terminals 13 w.r.t. 14 (Channel-2)	U _m = 253Vrms		
Power Dissipation	9000Ex-41/9000Ex-41-FS/9000Ex-42/9000Ex-43: ≤0.9W@24V 9000Ex-44/9000Ex-45: ≤0.6W@24V	Certificate Report No.	KLPL/Ex/25-102, Issue No. 00		
Power ON status LED	Green	PESO Approval No.	A/P/HQ/GA/104/5538		
Isolation		Ex Standards Complied	IS/IEC 60079-0:2017 IS/IEC 60079-11:2023		
Between Power to Input and Outputs: Galvanic Isolation of 2KVAC for 1 minute Between Input to Outputs: Galvanic Isolation of 2KVAC for 1 minute Between Output to Output: Galvanic Isolation of 2KVAC for 1 minute Insulation resistance: >200MQ@500V DC between All Ports		For Details, Please refer Operational Manual			

CONNECTION DIAGRAM

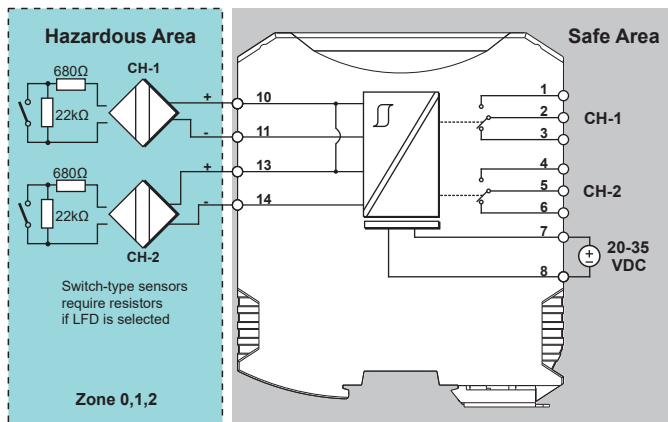
9000Ex-41



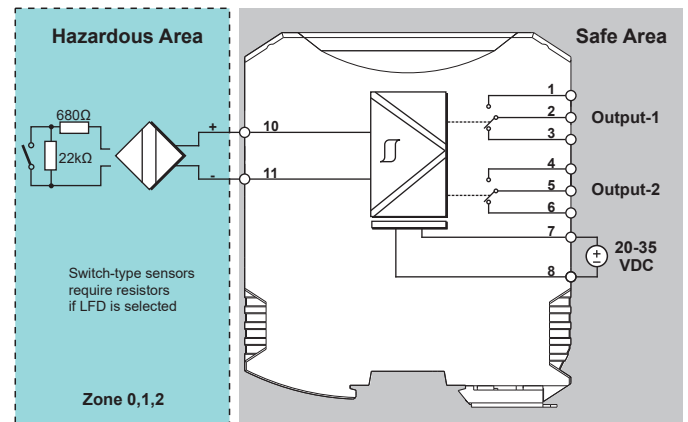
9000Ex-41-FS



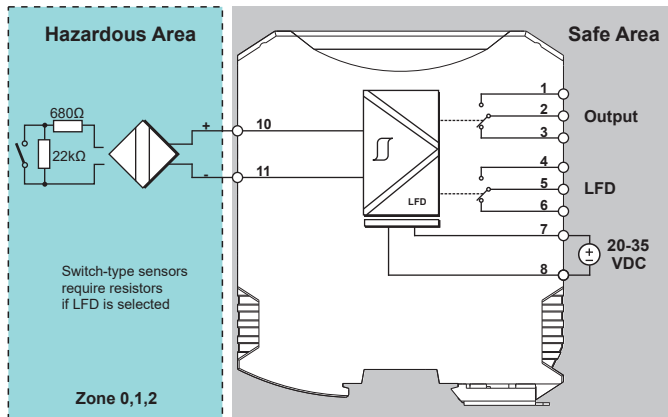
9000Ex-42



9000Ex-43



9000Ex-44



9000Ex-45

